THE CLAIMS

What is claimed is:

1. A filing system controlling block-level storage on a plurality of storage units, comprising:

a policy manager containing at least one rule relating to block-level storage for a RAID level of protection for a file stored on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule contained within the policy manager being based on an access pattern of files stored on the plurality of storage units; and

an access manager providing the policy manager with information relating to access patterns of files stored on the plurality of storage units.

2. The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on size of the file.

3. The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on contents of the file.

4. The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on the name of the file and a location of the file in a name space of the filing system.

5. The filing system according to claim 1, wherein at least two files are stored on the plurality of storage units having different RAID levels of protection.

6. The filing system according to claim 1, wherein at least two files stored on a same storage unit have different RAID levels of protection.

7. The filing system according to claim 1, wherein the information relating to access patterns of files is used for determining at least one RAID stripe size.

8. The filing system according to claim 1, wherein the information relating to access patterns of files is used for write coalescing data for storage on the plurality of storage units.

9. The filing system according to claim 1, further comprising a RAID manager responsive to a rule contained in the policy manager by implementing the selected RAID level of protection for a file.

10. The filing system according to claim 9, further comprising a RAID engine responding to the RAID manager by generating RAID redundancy-type information for the file.

11. The filing system according to claim 1, further comprising a spacer manager containing availability information for each storage block on the plurality of storage units.

12. The filing system according to claim 1, wherein at least one storage unit is a hard disk drive.

13. The filing system according to claim 1, wherein at least one storage unit is a random access memory device.

14. The filing system according to claim 1, wherein at least one storage unit is an optical drive.

15. A method of creating a file on a storage subsystem having a plurality of storage units, the method comprising:

receiving a request at a filing system to create a file on the plurality of storage units;

querying a policy manager for at least one rule relating to block-level storage for a RAID level of protection for the file created on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule contained in the policy manager being based on an access pattern of files stored on the plurality of storage units;

writing the file to the plurality of storage units based on the RAID level of protection selected for the file; and

maintaining metadata relating to a location of RAID information for the file within the filing system metadata information.

16. The method according to claim 15, further comprising providing the policy manager with information relating to access patterns of files stored on the plurality of storage units.

17. The method according to claim 15, wherein the selected RAID level of protection is selected further based on a size of the file.

18. The method according to claim 15, wherein the selected RAID level of protection is selected further based on contents of the file.

19. The method according to claim 15, further comprising storing at least two files on the plurality of storage units using different RAID levels of protection.

20. The method according to claim 15, further comprising storing at least two files on a same storage unit using different RAID levels of protection.

21. The method according to claim 15, further comprising determining at least one RAID stripe size based on the information relating to access patterns of files.

22. The method according to claim 15, further comprising write coalescing data for storage on the plurality of storage units based on the information relating to access patterns of files.

23. The method according to claim 15, further comprising dynamically adjusting a RAID stripe size to match a filing system stripe and segment size based on at least one rule.

24. The method according to claim 15, further comprising implementing the selected RAID level of protection for a file based on a rule contained in the policy manager.

25. The method according to claim 24, further comprising generating RAID redundancy-type information for the file.

26. The method according to claim 15, wherein at least one file stored on the plurality of storage units is stored as a store for filing system metadata information.

27. The method according to claim 15, further comprising storing availability information for each storage block on the plurality of storage units.

28. The method according to claim 15, wherein at least one storage unit is a hard disk drive.

29. The method according to claim 15, wherein at least one storage unit is a random access memory device.

30. The method according to claim 15, wherein at least one storage unit is an optical drive.

31. A method of writing a file on a storage subsystem having a plurality of storage units, the method comprising:

determining at a filing system that a file stored on the plurality of storage units should be updated;

querying a policy manager for at least one rule relating to block-level storage for a RAID level of protection for the file stored on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule contained in the policy manager being based on an access pattern of files stored on the plurality of storage units;

writing the file to the plurality of storage units based on the RAID level of protection selected for the file; and

maintaining metadata relating to a location of RAID information for the file within the filing system metadata information.

32. The method according to claim 31, wherein writing the file writes the file at the same place on the plurality of storage units that the file was located before the writing based on the selected RAID level of protection.

33. The method according to claim 31, wherein writing the file writes the file at a different location on the plurality of storage units based on the selected RAID level of protection.

34. The method according to claim 31, further comprising providing the policy manager with information relating to access patterns of files stored on the plurality of storage units.

35. The method according to claim 31, wherein the selected RAID level of protection is selected further based on size of the file.

36. The method according to claim 31, wherein the selected RAID level of protection is selected further based on contents of the file.

37. The method according to claim 31, wherein the selected RAID level of protection is selected further based on a name of the file and a location of the file in a name space of the filing system.

38. The method according to claim 31, wherein at least one storage unit is a hard disk drive.

39. The method according to claim 31, wherein at least one storage unit is a random access memory device.

40. The method according to claim 31, wherein at least one storage unit is an optical drive.